



Adjusting the feed mechanism on one of the Scully recorders. Controls in foreground are for the automatic relay system, head controls and a variable control for adjusting the program monitor output.

RECORDING LABORATORY- LIBRARY OF CONGRESS

By **OLIVER READ (W9ETI)**

Managing Editor, RADIO NEWS

ONE of the most elaborate and completely equipped recording laboratories in the U. S. A. is installed in the Library of Congress, Division of Music, under the direction of Archibald MacLeish; Dr. Harold Speeback, Director of Music; Dr. B. A. Bobtin, Archivist of American Folk Music; John Langenegger, Chief Engineer; and Arthur D. Semmig, Assistant. It compares with the most modern installations presently found operating with our major broadcast networks.

The purpose of the Laboratory is to record by transcription the history of America on discs for permanent reference for future generations. Every conceivable type of early mechanical transcribers are kept on hand so that from them may be taken history-making addresses, music, etc., from the

early days of the original wax disc, the early Edison cylinder, early commercial records made by acoustical process, and then finally from modern records and transcriptions. Eventually all of these are cut or dubbed on standard 16" transcriptions.

Special sound trucks are sent out into the field to pick up first-hand American folk music from all parts of the United States. Interviews are made with representative folk and they are allowed to talk about whatever may be on their minds, whether it be politics, about the war, or baseball.

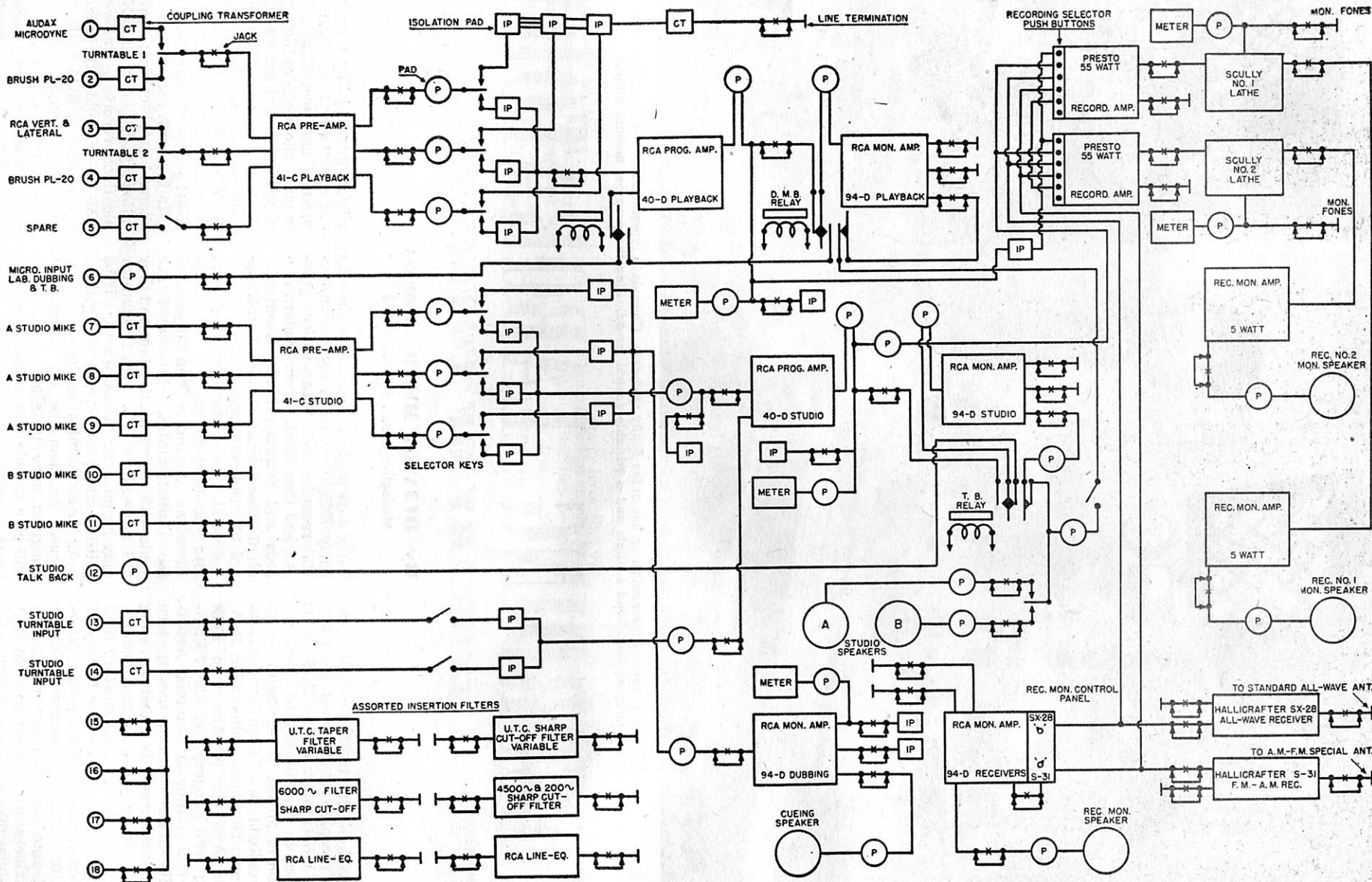
As far as technical equipment is concerned, engineers of the Library of Congress have installed units which will give trouble-free service for many years to come.

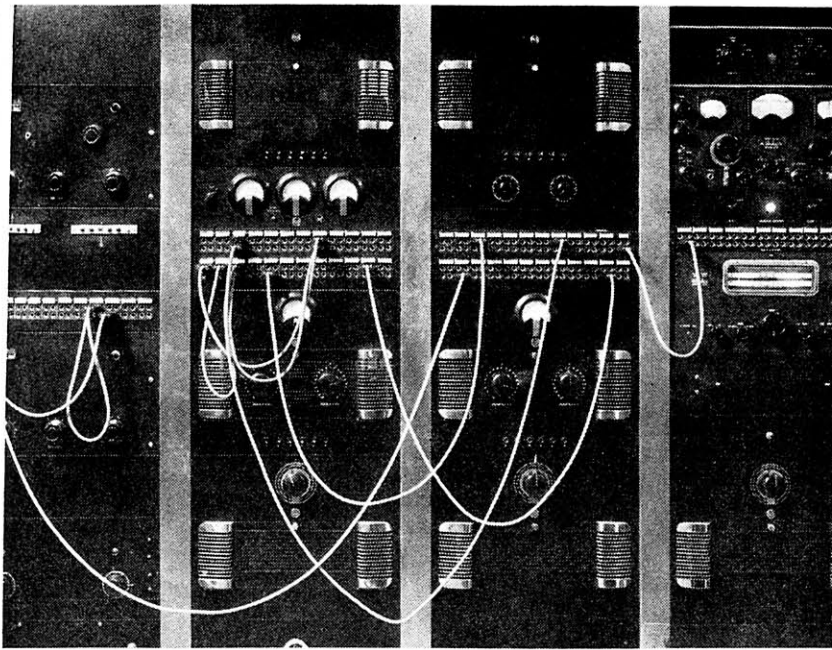
An elaborate studio is available

where direct pickup may be made under expert direction. Completely sound-proofed and acoustically treated, the main studio includes high-grade microphone equipment and special signal devices which are extremely rapid in their operation. Microphones used include RCA 88A and M1 3044 and a talk-back mike M1 4017 with its associated 78-B1 studio equipment.

In the main recording room is a four channel steel cabinet containing the following: *Hallicrafters* SX-28 communications receiver, *Hallicrafters* S-31 FM-AM high-fidelity tuner, RCA 85B preamplifiers, RCA 94-D monitor amplifiers, RCA 40-D general purpose amplifiers, *Presto* 88-A recording amplifiers, *Scully* recording lathes equipped with RCA MI 4887 recording heads, monitor loud speakers and RCA 64-B.

Block diagram of the entire recording network at the Library of Congress Recording Laboratory





Control panels (left to right): (1) Presto 50-watt recording amplifier and cutting head bridging monitor amplifier; (2) 3 channel preamplifier meter panel, patch panel, RCA 40-D program amplifier and 94-D monitor; (3) 3-channel RCA preamplifier, dual channel line equalizer, patch panel, 40-D program amplifier and 94-D monitor; (4) Hallicrafters SX-28 receiver, and S 31 tuner, and RCA 94-D monitor.



John Langenegger, Chief Engineer of the Library of Congress Recording Laboratory, shown tuning in on the Hallicrafters SX-28 receiver. The high-fidelity AM-FM tuner is shown mounted below the SX-28.

Other equipment includes a pair of *Presto* 6N recorders, a pair of *Fairchild* playback tables, and RCA Type 70-C turntables.

Occasionally programs are recorded which originate outside of the studio. Many receivers and tuners were installed and tried in order to find a combination that would give the highest fidelity possible with an unusually low background level. The final selection included the *Hallicrafters* SX-28 and the S-31. These have been installed permanently as a part of the recording setup.

A group of patch panels permits a wide assortment of possible connections to be made so that the entire system becomes most flexible and so that monitoring may be made at practically any point of any signal circuit.

The two *Scully* recorders are precision instruments and are equipped with automatic spiraling and include other features which make them most flexible in their operation. A special relay operated change-over circuit was devised by the engineers to transfer the modulation from one cutter to the other instantaneously, using push-but-

ton control. High-power microscopes are used for groove examination and allow continuous visual inspection of the cutting as it takes place. Approximately twelve grooves may be seen at one time through these microscopes and a tiny light directly over the record surface gives proper illumination at all times.

If at any time the main recording equipment should fail, the two *Presto* 6N tables may be put into service with little delay. All recording tables are adjusted carefully for proper level and are mounted substantially, then shock-



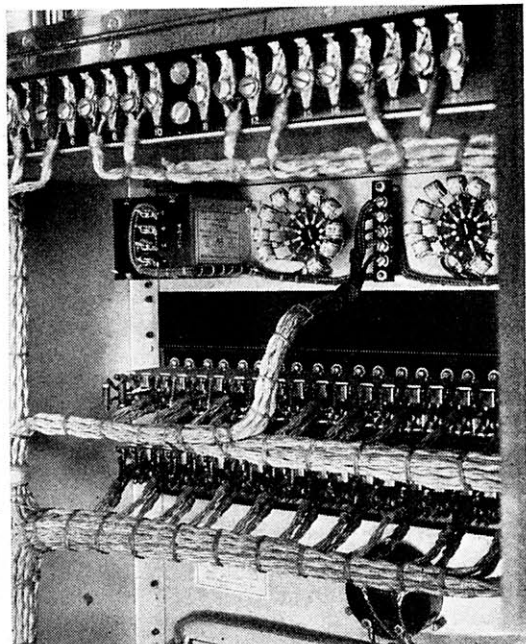
Portable phonograph equipment, including Presto Model L playback unit, used by secretarial staff when filing historical recordings.



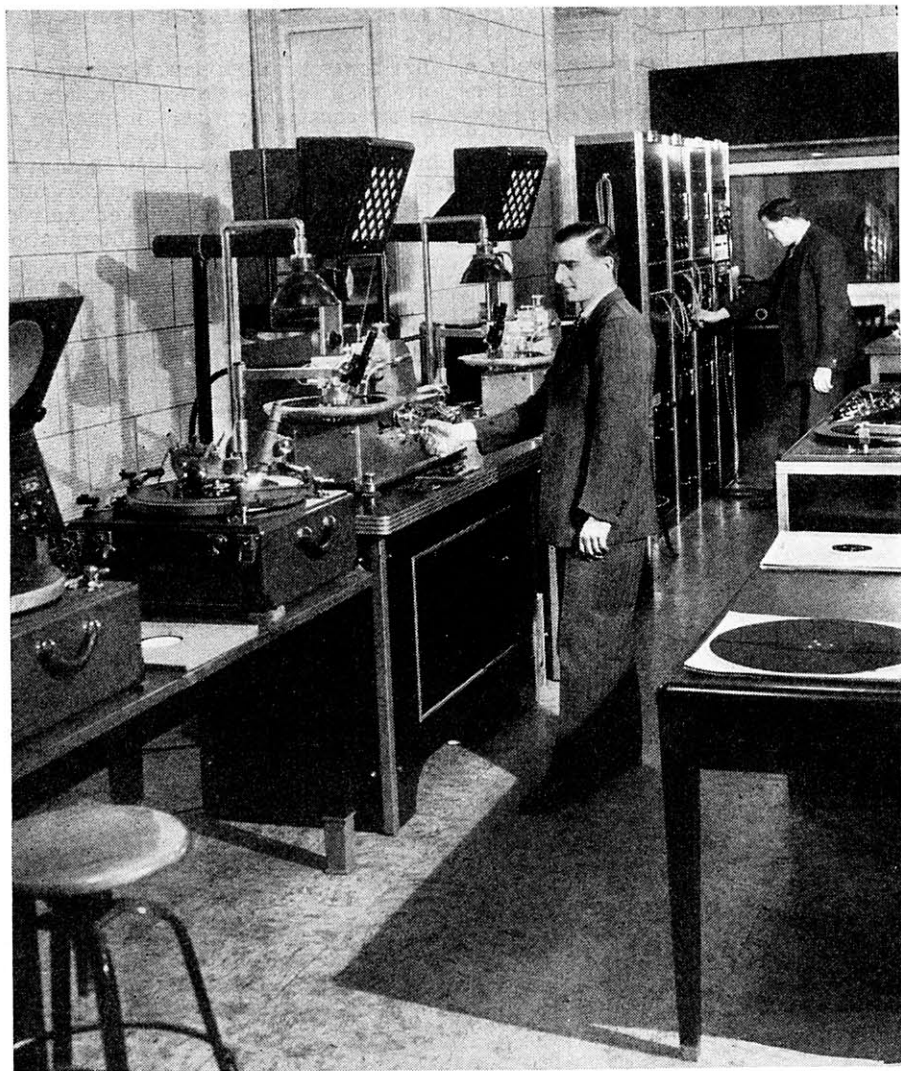
Closeup of dubbing table. Controls include automatic studio control board, filters, and equalizers.



Dr. Arthur D. Semmig operating oldtime cylinder transcribing machine. Crystal pickup output is fed to Scully recorder for dubbing.



Back view of patching panel and line equalizer. All wiring is neatly cabled and well shielded.



Complete recording setup includes two Scully recording machines, two Presto 6N recording machines, RCA high-fidelity amplifiers, Presto recording amplifiers, Fairchild playback tables, and Hallicrafters S-31 and SX-28 receivers.

proofed to guard against external vibrations.

Inasmuch as a wide combination of dubbings is used, special mixing panels have been assembled to give the widest possible flexibility to the particular dubbing technique employed for any given type of transcription. The dubbing panel includes *Brush* PL-20 and *RCA* pickups. Other controls include an automatic studio control board with talkback mike, on-the-air switches, cue lights and various filter and equalizer switches, attenuator controls and three faders.

A Customers' Room next to the Recording Laboratory was installed so that clients visiting the Library could have an opportunity to hear copies of discs which they required for historical reference. The equipment includes *Presto* Model L playback and a *Hallcrafters* high-fidelity speaker system. This room is also soundproofed.

One of the most interesting pieces of equipment found in the Laboratory is an oldtime cylinder transcribing machine. A crystal pickup has been installed in place of the original mechanical pickup so that the sound from the cylinders may be sent directly to the main recording equipment for dubbing. By the careful and intelligent use of equalizers, much of the original noise can be removed and the over-all cutting improved. One of the photographs shows Dr. Arthur D. Semmig operating this interesting and historical unit.

Completed transcriptions are carefully stored in metal containers and are placed in air-conditioned vaults where they will be kept clean and orderly for years to come. Careful indexing and tabulations make the finding of any one particular disc but a simple matter. Yes, America's voice is being preserved.